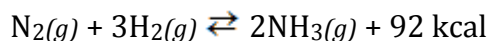


Name: _____

Date: _____

 § 18 Equilibrium Review

Complete the following table by writing left, right, or none for the equilibrium shift, and decreases, increases, or stays the same for the concentrations of reactants and products, and the value of K.

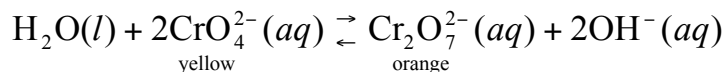


Stress	Equilibrium Shift	[N ₂]	[H ₂]	[NH ₃]	K
1. Add N ₂	right	----	decreases	increases	remains same
2. Add N ₂			----		
3. Add NH ₃				----	
4. Remove N ₂		----			
5. Remove H ₂			----		
6. Remove NH ₃				----	
7. Increase Temp.					
8. Decrease Temp.					
9. Increase Pressure					
10. Decrease Pressure					

11. Which of the following would *not* affect the aqueous equilibrium reaction represented by the equation? $\text{HNO}_2(aq) \rightleftharpoons \text{H}^+(aq) + \text{NO}_2^-(aq)$

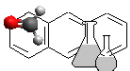
- the addition of NaNO₃(s)
- an increase in H⁺ concentration
- the addition of NaNO₂(s)
- a decrease in NO₂⁻ concentration

12. Consider the equilibrium system represented by the equation.



If the hydroxide ions were removed, how would the color change?

- to darker yellow
- to lighter orange
- to darker orange
- not at all



13. The equilibrium constant expression for the reaction $2\text{BrF}_5(\text{g}) \rightleftharpoons \text{Br}_2(\text{g}) + 5\text{F}_2(\text{g})$ is

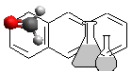
- A) $K_c = [\text{Br}_2] [\text{F}_2] / [\text{BrF}_5]$ D) $K_c = [\text{BrF}_5]^2 / [\text{Br}_2][\text{F}_2]^5$
B) $K_c = [\text{Br}_2] [\text{F}_2]^5 / [\text{BrF}_5]^2$ E) $K_c = 2[\text{BrF}_5]^2 / ([\text{Br}_2] \times 5[\text{F}_2]^5)$
C) $K_c = [\text{Br}_2] [\text{F}_2]^2 / [\text{BrF}_5]^5$

14. On analysis, an equilibrium mixture for the reaction $2\text{H}_2\text{S}(\text{g}) \rightleftharpoons 2\text{H}_2(\text{g}) + \text{S}_2(\text{g})$ was found to contain 1.0 mol H_2S , 4.0 mol H_2 , and 0.80 mol S_2 in a 4.0 L vessel.

Calculate the equilibrium constant, K_c , for this reaction.

- A) 1.6 B) 3.2 C) 12.8 D) 0.64 E) 0.8

15. For the equilibrium, $2\text{A}(\text{g}) \rightleftharpoons \text{B}(\text{g}) + \text{C}(\text{g})$, the equilibrium constant, K_c , is 1.40×10^{-3} . If 1.56 mol A, 0.488 mol B, and 0.488 mol C are mixed in a 2.00 liter vessel, what are the concentrations of A, B, and C at equilibrium?



Stress	Equilibrium Shift	[N ₂]	[H ₂]	[NH ₃]	K
1. Add N ₂	right	—	decreases	increases	remains the same
2. Add H ₂	right	dec.	—	inc.	Same
3. Add NH ₃	left	inc.	inc.	—	Same
4. Remove N ₂	left	—	inc.	dec.	Same
5. Remove H ₂	left	inc.	—	dec.	Same
6. Remove NH ₃	right	dec.	dec.	—	Same
7. Increase Temperature	left	inc.	inc.	dec.	dec.
8. Decrease Temperature	right	dec.	dec.	inc.	inc.
9. Increase Pressure	right	dec.	dec.	inc.	Same
10. Decrease Pressure	left	inc.	inc.	dec.	Same

11. a

12. c

13. B.

14. B.

15. [A] = 1.180 M

[B] = 0.044 M

[C] = 0.044 M